

"W" is a Nicols prism will be apt to confuse the student. The resistance pyrometer is said to give the correct temperature to a tenth of a degree at 1000° C., but owing to the coating required to protect the platinum wire for most work, nothing like this accuracy will be obtained in practice. In speaking of the useful Féry spiral pyrometer, it is indicated that one of its objections is that it will only give "black body" temperatures, but surely this limitation applies to the other radiation pyrometers also.

The account of the manufacture of Sheffield steel-melting crucibles is not correct, nor is the statement (p. 346) that the crucible is "put to dry, after which it is used without firing," as these crucibles are subjected to a very careful firing, or annealing, on a very ingeniously designed annealing grate. Also, amongst the addition of non-plastic material added to enable the crucible to be made without cracking, are mentioned burnt clay, silica, and graphite; but in Sheffield work the material used is the best ground coke-dust, which not only has this effect, but by forming a solid skeleton to the material of the crucible at temperatures at which the fireclay material is quite soft, enables the crucible to stand the necessarily rough usage to which it is subjected during the making of crucible steel, without losing its shape. If from any little accident in the annealing of the crucible air has been allowed to impinge on any part of it so as to burn out the coke-dust, the crucible loses its shape at these portions, and is exceedingly difficult to manipulate.

The whole subject-matter of the book covers a very wide field, and these critical observations are not intended to indicate that the work will not be a useful one for students, but are only intended to set them on their guard in cases where it will be necessary for them to know the exact state of practical work, or to compare with other authorities where their own experience seems to differ from the statements made in the book.

A. McWILLIAM.

MEDICAL PARASITOLOGY.

A Handbook of Practical Parasitology. By Prof. Max Braun and Dr. M. Lühe. Translated by Linda Forster. Pp. viii+208. (London: J. Bale, Sons and Danielsson, Ltd., 1910.) Price 10s. 6d. net.

THIS is a handy and very useful work by two extremely competent authorities, and well worth translating into English for the benefit of medical men and others to whom the German language may present difficulties. The book is divided into three parts—(i.) Protozoa, (ii.) Helminthes, and (iii.) Arthropoda. Each of these sections begins with an introductory portion, in which, after a general account of the group, very full directions are given for its practical study, with an excellent summary of the most important and useful methods of technique. The group is then dealt with systematically, those forms most important for the purposes of the book being described in their place in the classification, and for each main subdivision a common and easily obtained type is described in detail with directions for procur-

ing and studying it. The information given is in general accurate and up-to-date—the date, that is to say, of the German edition—and the figures are clear and well executed.

In the Protozoa the step is taken of abolishing the class Sporozoa and elevating its two principal subdivisions, Neosporidia and Telosporidia, to the rank of independent classes. The Neosporidia are placed immediately after the Rhizopoda, while the Telosporidia follow the Flagellata, but with subtraction of the Hæmosporidia, which are classified with the Trypanosomidæ amongst the Flagellata as the third order, Binucleata, of that class. In their treatment of these organisms the authors take up an advanced neo-Schaudinnian standpoint with regard to certain highly controversial questions.

The term Helminthes has no zoological significance, but is used in a sense convenient for medical requirements to comprise the Trematodes, Cestodes, Nematodes, and Acanthocephala; not, however, the leeches. In the section Arthropoda, which is a brief one, an account is given of the mites, Linguatulids, lice, fleas, and parasitic Diptera. The Arthropods which transmit parasites, such as ticks and "stinging-flies" (*sic*), are dealt with under the Protozoa.

The translation is, in general, clear, but some curious results arise from the translator's desire to anglicise scientific terms. It appears to be a rule with her to convert the termination "-idium," plural "-idia," into "-ide," plural "-ides," and the consequences are in many cases very puzzling. "Coccide," for instance, suggests a cochineal insect, but means in this book a coccidian parasite. No zoologist would ever guess the meaning of "Myxides," used to denote individuals of the common parasite of the bladder of the pike, *Myxidium lieberkühni*. Most zoologists, and many people who are not zoologists, are familiar with chromidia, disguised here as "chromides." In these and many other cases the meaning of the term used can only be inferred from the context or deduced from analogy. It is also very misleading to use the term "carnivori" to denote birds of prey (p. 60); "small-pox" on p. 32 should be carp-pox; and *Trypanosoma*, in the description of Fig. 14, should be *Trypanoplasma*. It is to be regretted that the eminent zoologists and others, to whom the translator expresses her indebtedness for assistance, did not correct these vagaries.

E. A. M.

POPULAR ASTRONOMY.

- (1) *Astronomy, a Handy Manual for Students and Others.* By Prof. F. W. Dyson, F.R.S. Pp. vii+247. (London: J. M. Dent and Sons, Ltd., 1910.) Price 2s. 6d. net.
- (2) *Chats about Astronomy.* By H. P. Hollis. Pp. vi+226. (London: T. Werner Laurie, n.d.) Price 3s. 6d. net.

MANY signs point to the fact that the popular interest in astronomy grows from day to day. Perhaps in revolt against the merely utilitarian the world will not willingly let die the least obviously practical of the sciences. The production of books,

urged by this increased interest, and rendered necessary by the extraordinary modern progress of the science, is not behind the demand. That diverse tastes and capacities have to be catered for is clearly seen in the characters of the above books. The first, condensed, but logical and lucid, will appeal essentially to the lover of astronomy having a mind comparatively trained to precise thinking, while the second frankly provides for the reader who needs spoon-feeding, and likes printed talk.

(1) A simple account of the methods and results in astronomy, without unnecessary detail, and clearly stated for the student and general reader, is the aim and in great part the achievement of this handy little manual. Such faults as the book possesses spring mostly from a too great conciseness. In such subjects as the finding of the solar parallax and the estimation of the distance of the Milky Way, it is better to keep in mind the weaker brethren than the resolute student. Too great economy of words ceases to be a virtue. Jumps, however, requiring undue intellectual effort on the part of the reader are not of frequent occurrence, while the general precision and clarity are ample compensations.

The work is comprehensive in scope, embracing the ancient astronomy and its development through the Copernican system to the most modern outlook on the universe. Recent work on astrophysics, the more intimate study of suns, near and far, is effectively presented. Very few mistakes have been noticed, though what seems an erroneous inference from diagram lxxxiv. leads to the inversion of the relative masses of Sirius and its companion, while it might be inferred from a statement on p. 116 that a magnetic field is a property of all sun-spots. This certainly is not proven.

The reproductions are effective and well chosen, and the diagrams, while efficient, have a home-made look about them which is quite pleasant, though the practice of using Roman numerals to indicate them seems wholly without virtue. An efficient and tasteful binding and handy format are further recommendations for a remarkably cheap book.

(2) Though dealing somewhat discursively with such parts of astronomy as are of most popular appeal, the common sense and individuality of the writer prevent the treatment from becoming banal. To the man in the street interested in the phenomena of the skies, the book may be recommended, and he will no doubt read it with interest and profit. In great part the author restricts himself to the realm of naked-eye astronomy. Both the manner and matter and the definiteness with which the subject is treated suggest and encourage a practical acquaintance with the phenomena on the part of the reader. The earth and its movements, stars and planets, sun-spots and comets, and the changes of the moon are among the subjects informingly and chattily dealt with. A brightly and amusingly written chapter on astronomers and their work gives an excellent account of a much misunderstood profession. The inset reproductions are sufficiently good, but the general appearance of the book might certainly be improved.

NO. 2135, VOL. 84]

MARINE BIOLOGICAL RESEARCH IN BRITISH SEAS.

- (1) *Bulletin Trimestrie: Conseil Permanent International pour l'Exploration de la Mer. Résumé des Observations sur le Plankton des Mers explorées par le Conseil pendant les Années, 1902-1908.* Edited by H. M. Kyle. Part i. Pp. xxxiv+79, and 10 plates. (Copenhagen: And. Fred Høst et Fils, 1910.)
- (2) *The Decapod Natantia of the Coasts of Ireland.* By Stanley M. Kemp. Scientific Investigations, 1908, Department of Agriculture and Technical Instruction for Ireland, Fisheries Branch. Pp. 190+23 plates. (Dublin: 1910.) Price 3s. 6d.
- (3) *Report of a Survey of the Trawling Grounds on the Coasts of Counties Down, Louth, Meath, and Dublin.* By E. W. L. Holt. Part I., Record of Fishing Operations. Scientific Investigations, 1909, No. 1, Department of Agriculture and Technical Instruction for Ireland. Pp. 538+2 plates. (Dublin: 1910.) Price 3s.

(1) IN 1908 the International Council resolved to prepare a report on the plankton work carried out by the countries participating in the international fisheries investigations, and the present bulletin contains the first instalment of this report. The bulletin begins with lists of the stations and times of investigation, and of the kinds of nets employed and the occasions on which they were worked. Special reports are then given, in which various specialists deal with the annual and seasonal abundance of the main groups of animal and plant organisms represented in the catches. The groups so far summarised are the Tintinnoidea, Halosphaera and Flagellates, Cladocera, Pteropoda, and Copepoda. Following these special reports are synoptical charts representing the abundance and seasonal distribution of the commoner species contained in the groups studied. The material thus summarised is very considerable; 332 stations in all were worked, some 14,000 hauls were made, and altogether about 800 species of planktonic organisms were identified. It is evident, however, that the deduction of general results from this mass of material has been a difficult task. The coordination of the observations has been imperfect from the first; many changes have been made, and there has been confusion in the choice of methods of investigation. Nevertheless the results obtained are of very great value, and general facts of distribution in relation to the physical changes taking place in the sea emerge clearly from the study of the data. The report provides a concise and valuable summary of this extensive investigation.

(2) This is a minute and careful account of forty-seven species of decapod natant Crustacea (fifty-four in all are recorded from the entire British sea-area) collected by the Irish Fishery cruiser *Helga* off the coasts of Ireland, the main localities investigated being Rathlin Deep, the Irish Sea between Dublin and the Isle of Man, the deep water of Counties Cork and Kerry, and the region near the Porcupine Bank. The report, which is a valuable addition to our knowledge of the British marine fauna, includes full details of